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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,771	02/20/2004	Hiroyuki Kinugawa	Q79652	3779
23373	7590	02/03/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			RIDDLE, KYLE M	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/781,771

Applicant(s)

KINUGAWA ET AL.

Examiner

Kyle M. Riddle

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Response to Amendment*

#### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 4, and 6 are further rejected under 35 U.S.C. 103(a) as being obvious over Miyasaka (U.S. Patent 6,497,208).

Miyasaka discloses a variable valve control apparatus comprising:

- a first rotor or housing member 4 rotating via chain sprocket 3 synchronously with a crankshaft (column 3, lines 59-63, Figures 1 and 3);
- a second rotor 15 secured on an end of camshaft 1 rotating relative to housing member 4 and provided with sealing means to seal the clearance between the rotors (column 4, lines 37-54, column 5, lines 41-45, Figures 1 and 3);
- a rotation regulating member or locking pin 37 for locking the relative rotation of the housing member 4 and rotor 15 at a predetermined position (column 6, lines 50-60, Figure 1);
- an engaging hole or member 44 opening to a flat cuttable surface for receiving locking pin 37, the engaging member 44 surface hardened or quenched (column 6, lines 30-34, Figures 5A-5C).

Miyasaka fails to disclose the engaging hole being formed from one of the rotors instead of being a separate piece. Miyasaka, however, teaches all of the same features and benefits

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claimed by the applicant. It would have been obvious to one of ordinary skill in the art to make the engaging hole separate instead of being integral to the rotor. Moreover, there is nothing in the record which establishes that the application of the engaging hole being formed from the rotor represents a novel or unexpected result (See *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).

3. Claims 1, 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikame et al. (U.S. Patent 5,724,929) in view of Hase (U.S. Patent 6,523,511).

Mikame et al. disclose a variable valve timing mechanism comprising:

- a first rotor or sprocket 51 rotating synchronously with a crankshaft of an engine (column 8, line 48, Figures 9 and 10);
- a second rotor 52 secured to an end of a camshaft 55 providing relative rotation to first rotor or sprocket 51 (column 9, lines 51-52, Figures 9 and 10);
- a rotation regulating member or lock pin 60 located on a vane 522 of rotor 52 to lock rotor 52 relative to sprocket 51 in an initial position (column 8, lines 45-49, Figures 9 and 10);
- an engaging hole 533 opening to a flat cuttable surface in plate 53 fixed to sprocket 51 to engage with lock pin 60, the inner surface of the plate 53 including engaging hole 533 being surface hardened to include induction hardening (including quenching) (column 9, lines 6-9, lines 34-37, Figures 9 and 10);
- a clearance provided between the rotors (column 8, lines 11-15, Figures 9 and 10).

Mikame et al. fail to disclose only the engaging hole being surface treated and not the surrounding areas.

Hase teach a valve timing adjusting apparatus with only the locking hole 8 and stepped portion 9 being processed by a quenching operation (column 5, lines 50-54, column 13, lines 40-44). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Hase in the valve timing device of Mikame et al., since the use thereof would limit the amount of surface area requiring treatment and thus reduce manufacturing cost and complexity.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being obvious over Miyasaka or Mikame et al. as modified by Hase.

Mikame et al., as modified by Hase, and Miyasaka disclose variable valve mechanisms with relatively rotatable rotors, locking pins engaging a locking hole, and the engagement hole being formed by induction hardening or quenching. They, however, fail to disclose an oxide surface treatment.

Mikame et al. and Miyasaka, as described above, cite treating the engagement hole of the locking mechanism to harden the surface to resist wearing and abrasion during long operation. The inclusion of an oxide film forming surface treatment to harden the engagement surface would have been obvious to one having ordinary skill in the art depending on manufacturing and production costs, ease of production, and wear results. Moreover, there is nothing in the record which establishes that the application of such a surface hardening treatment represents a novel or unexpected result (See *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).

#### ***Response to Arguments***

5. Applicant's arguments filed 19 November 2004 have been fully considered but they are not persuasive.

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6. Amended claim 1 specifically delineates only the engaging hole of the locking mechanism being surface treated and formed from one of the two rotors while the surrounding surface area remains untreated (see remarks, page 5, middle paragraph to page 6, first full paragraph). The apparatus disclosed by Mikame et al., as cited above, seeks to point out the benefits of surface treating with regard to the engaging hole, while the apparatus taught by Hase above clearly shows only treating the surface area of the engaging hole to obtain the same benefits. The applicant also argues on page 7, first full paragraph, that the apparatus disclosed by Miyasaka is of a separate piece and not formed from the corresponding rotor. Examiner contends that the separate portion makes manufacturing more simple and less costly while essentially providing exactly the same benefits claimed by the applicant. With regard to the arguments concerning claim 2 on pages 7 and 8, the examiner disagrees. There are numerous types of surface treatments available to one of ordinary skill in the art, and the applicant has not shown that the use of an oxide-film provides an extraordinary or unobvious result over other types of treatment.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

*Communication*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyle M. Riddle whose telephone number is (571) 272-4864. The examiner can normally be reached on M-F (07:30-5:00) Second Friday Off.

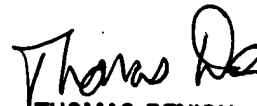
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kyle M. Riddle  
Examiner  
Art Unit 3748

kmr



THOMAS DENION  
SUPERVISORY PATENT EXAMINER  
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